

An Alaska gas pipeline really is possible



Students Who Enjoy Economic Thinking

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Larry Persily, Federal Coordinator

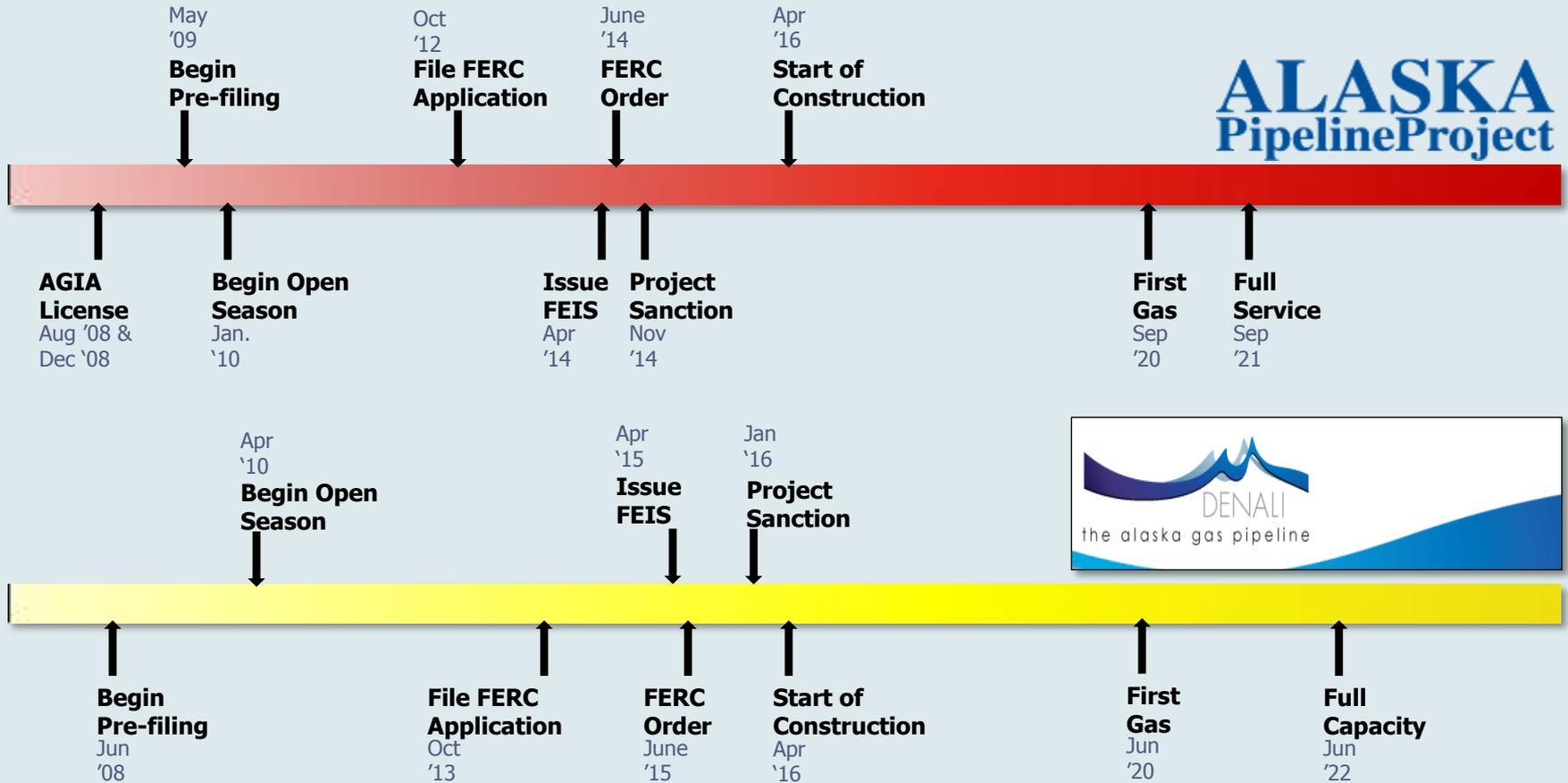
There is progress

- Alaska Pipeline Project (TransCanada/ExxonMobil) and Denali (ConocoPhillips/BP) have spent more than \$500 million since 2000
- Open seasons closed; multiple bids (with conditions)
- Conditions on pipeline bids not unusual
 - ▣ ***Just like an earnest money offer on a house***
- More news could come late 2010, early 2011
 - ▣ ***No disclosures until signed agreements***

Precedent agreements

- Next step in FERC process after open season
- Can take weeks in a small projects; several months for larger projects — and this is the largest ever
- Not the final binding shipping commitment, but close
- Public disclosure of shipper, volume and tariff
- Signed precedent agreements trigger spending
- Shippers start to assume some of the risk
 - ▣ *Shippers can be billed for share of costs if project dies*

Proposed project schedules



We're not the only pipeline

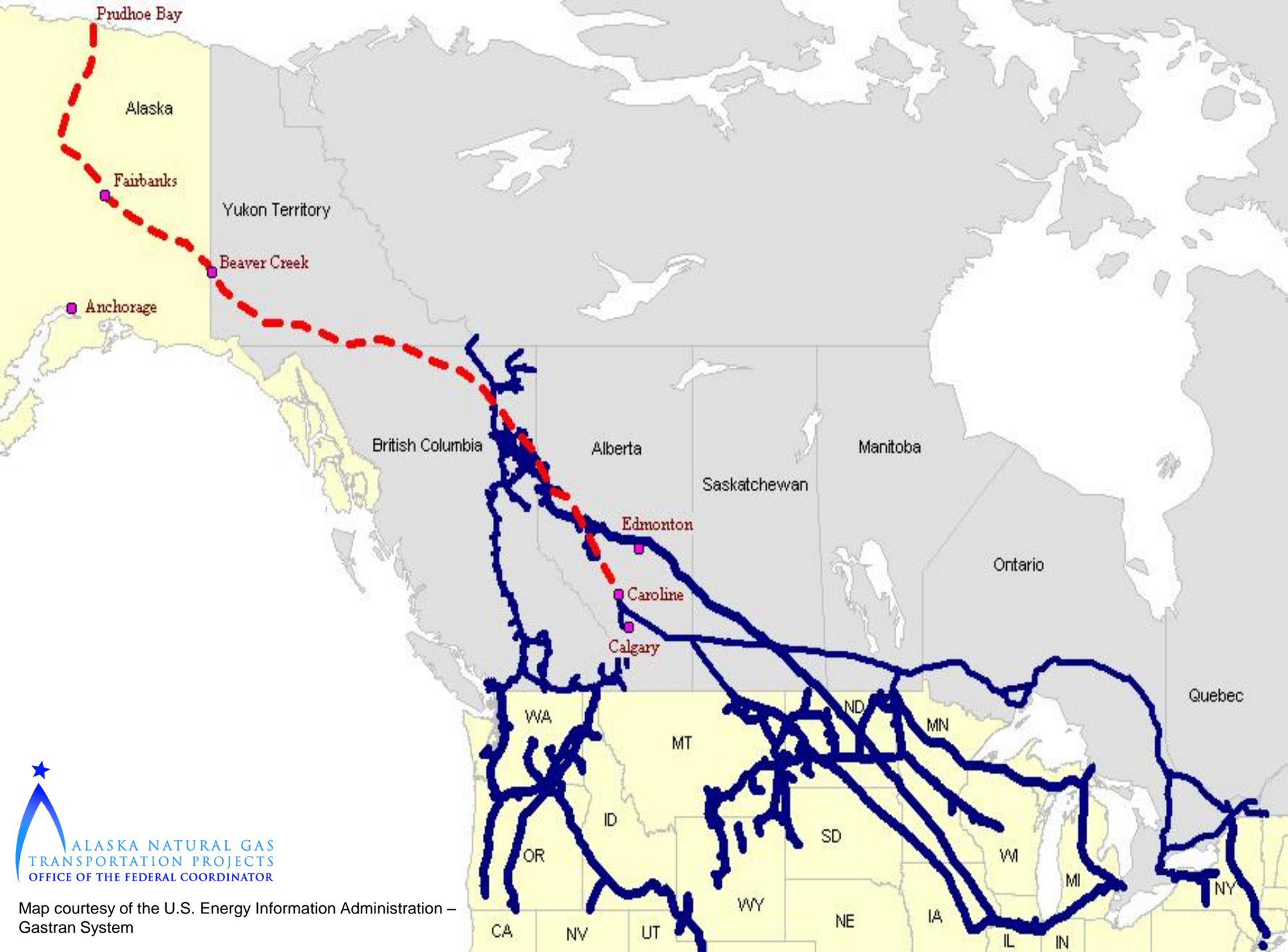
- New pipe to move Rockies gas, shale gas east/west
- Ruby: 680 miles, 42-inch, \$3 billion, 1.5 bcf/day, Wyoming to Oregon, El Paso Corp., spring 2011
- Rockies Express: 1,679 miles, 36- to 42-inch, \$5-plus billion, 1.8 bcf/day, Colorado to Ohio, Kinder Morgan/ConocoPhillips/Sempra, 2009
- Kern River: Expansion to 1.9 bcf/day, Wyoming to California, MidAmerican Energy, 2010
- Even more: Wyoming, Texas, Louisiana, Pennsylvania

Redistribution of wealth

- Pipe capacity shortage reduced Rockies gas value; producers were unable to get product to market
- New pipelines will ‘unstrand’ Rockies gas
- Rockies gas and shale gas into Midwest and Mid-Atlantic have pushed Midcontinental gas to find markets; supply searches for demand
- Redistribution of supply has equalized value; reduced geographic differential for producers

Find the best market

- Pipeline from Alaska to North America would feed into the largest natural gas market in the world
- North America consumes 75 to 80 bcf per day
- Pipeline grid can move Alaska gas from California to New York, and every other state in between
- North America market is three times the size of China, India, Japan, South Korea and Taiwan natural gas markets combined
- In-state delivery must be part of deal for Alaskans



 ALASKA NATURAL GAS
TRANSPORTATION PROJECTS
OFFICE OF THE FEDERAL COORDINATOR

Map courtesy of the U.S. Energy Information Administration – Gastran System

LNG market is tough

- Australia, Indonesia, Russia, Malaysia, Brunei, Papua New Guinea, Qatar, Oman, Yemen, United Arab Emirates, Egypt, Algeria, Nigeria, Trinidad, Peru and Norway
- All operating or building LNG export projects
- New projects scheduled for 2009-2015 are adding 50% to Asia LNG supply
- Qatar is on target to reach its 2010 goal of 11 bcf per day, with some of the lowest costs

Australia wants to be No. 1

- \$50 billion in LNG projects under construction
- \$50 billion more in projects will be ready for investment decisions by next year
- Shell, Chevron, ExxonMobil, ConocoPhillips, Hess, Total, Apache, Woodside and others are spending serious money in Australia
- Shell alone looking at \$50 billion this decade
- Nothing in Australia needs 800-mile Arctic pipeline

Floating LNG

- Shell looking to bring first floating ‘platform’ online 2016 for offshore (120 miles) Australia field
- Australian government just approved Shell project
- \$5 billion investment; 500 million cubic feet per day
- Samsung holds contract to build up to 10 ships
- 1,600 feet long, 250 feet wide, one-stop shop
- Other producers also looking at floating LNG for Indonesia and Papua New Guinea

Competition back home

- Unconventional gas about 20% of U.S. supply
- Shale gas growing rapidly across U.S. and Canada
- CERA: “Nobody drills a dry hole in a shale play. If they did, they’re not very good.”
- But the truth is, much of shale goes toward replacing declining production from conventional gas wells
- Canadian decline rate about 20% per year; 3+ bcf per day of new gas just to stay even

Shale Gas Plays, Lower 48 States



Source: Energy Information Administration based on data from various published studies.
 Updated: March 10, 2010

It all adds up the same

- Shale gas is closer to high-volume markets; transportation costs are lower than Alaska gas
- But production costs are higher for shale than for North Slope gas from producing fields
- Customers pay the same price for gas, regardless of production or transportation costs
- Variable in the equation is the value to producers
- Alaska can compete despite high pipeline costs

How pipeline tariffs work

- Federal Energy Regulatory Commission allows rate of return on equity only; no profit on debt
- FERC sets rate of return based on project risk
- Pipeline charge (tariff) includes equity return and profit, debt service, operations and maintenance
- The gas owners (shippers) take all of the risk on commodity price, not the pipeline operator
- Gas owners pay all of the taxes, either directly (production tax) or pass-through (property tax)

Shale has its problems

- ❑ Fracking becoming about as popular as an oil spill
- ❑ EPA review underway; states consider their own laws
- ❑ West Virginia draft water quality regs: 100 pages
- ❑ Hydraulic fracturing for shale gas requires
3 million to 5 million gallons of water per well
- ❑ EPA lead: “Where is that water coming from?”
- ❑ Produced water disposal is the biggest issue
- ❑ Utilities group: “Environmental costs always go up.”

Shale actually could be good

- Shale could help by eliminating price spikes and getting utilities to think gas for the long term
- Worldwatch Institute: “Price volatility remains the Achilles’ heel of natural gas.”
- No utility can afford repeat of \$14 price spikes
- Utility president: “Building a 1,000-megawatt, gas-fired plant doesn't make sense if you can't be sure what your fuel costs will be.”
- Shale makes utilities feel more comfortable with gas

Utilities are thinking gas

- Growth in electrical power plant demand is essential
- American Public Power Association: Clean Air Act is pushing utilities to decide which plants survive
- The future is natural gas, not coal, for new plants
- TVA, Calpine, Xcel Energy, Constellation, Duke, Progress Energy planning new gas-fired plants
- Colorado's Xcel: Gas will cost \$1.3 billion, but \$225 million less than upgrading coal plants

New regulations and EPA

- Anything that helps drive the nation to clean-burning natural gas is good for the Alaska pipeline
- New EPA regulations could boost gas demand
- Utilities see possible new federal regulations, but don't know what or when — they're nervous
- They are factoring that uncertainty into their long-term power plant investment decisions now
- Politics could help, or hurt, natural gas demand

Demand growth is key

- Electrical demand grew from 14 billion cubic feet per day in 2000 to 19 bcf per day in 2009
- CERA: Electrical utility demand for gas could almost double 2009 - 2030; an additional 16 bcf/day
- Interstate Natural Gas Association of America:
Replacing half of oldest, least-efficient coal plants would require 5.5 bcf of gas per day
- It's not taking from coal, but going after new plants and replacement of older, costlier coal plants

It's not easy, but it's possible

- Wood Mackenzie: **“Whether the project proceeds ... depends on if the producers and the state can reach agreement on the applicable tax terms and, ultimately, what the producers believe to be the long-term value of natural gas in the North American marketplace.”**
- At some point everyone needs to sit down and talk
- Alaska needs the gas line to help replace declining oil revenues and spur North Slope development

Federal assistance

- Accelerated depreciation for pipeline
- Tax credits for gas treatment plant (world's largest)
- Federal loan guarantee would reduce cost of borrowing, therefore the cost of pipeline tariff
- Expedited permit review; 18-month EIS deadline
- But only for a gas line to serve Lower 48
- No federal aid for an exclusively in-state line or an exclusively LNG export project

Oil taxes? Maybe not for gas

- State currently taxes oil the same as gas
- But it costs more to move a Btu of gas than oil
- \$80 oil today, less than 10% goes to transportation
- \$6 gas, two-thirds to three-quarters goes to pipeline
- There just isn't that much for state and federal taxes, shareholder profit / reinvestment for producers
- State's progressivity tax takes away high-side potential needed to compensate for low side

Getting the most for Alaska

- Growing interest in a state-subsidized, small line from Prudhoe Bay to Fairbanks to Anchorage
- Hypothetical: For a multibillion-dollar state subsidy in a small in-state gas line, Alaska could get:
 - ***Gas to Fairbanks, and also gas to Southcentral
(but with a heavy subsidy to match today's prices)***
 - ***Few hundred million dollars a year in taxes & royalties***
 - ***Too small of a gas volume to justify new North Slope development that could stem decline in oil production***

There is a better option

- Take those billions, negotiate and look at what could be done to help a large line to North America
- Merge the mainline and in-state pipeline projects
- The state could get for its money:
 - ***The lowest cost gas for in-state consumers***
 - ***\$2 billion a year or more in taxes and royalties***
 - ***Moving so much gas would start an immediate push for new exploration to keep the line full for decades***

Thank you

Contact information:

Larry Persily, Federal Coordinator - (202) 478-9755
lpersily@arcticgas.gov

www.arcticgas.gov
info@arcticgas.gov

1717 H St. NW, Suite 801
Suite 801
Washington, DC 20006
(202) 478-9750

188 W. Northern Lights Blvd.
Suite 600
Anchorage, AK 99503
(907) 271-5209